

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization

International Bureau



(43) International publication date

7 April 2005 (07.04.2005)

(10) International publication number

PCT

WO 2005/031239 A1

(51) International patent classification<sup>7</sup>: F28F 9/02, 27/02

(21) International application number: PCT/EP2004/010919

(22) International filing date: 30 September 2004 (30.09.2004)

(25) Language of filing: German

(26) Language of publication: German

(30) Data relating to the priority:  
103 46 186.8 2 October 2003 (02.10.2003) DE

(71) Applicant (for all designated States except US): BEHR  
GMBH & CO. KG [DE/DE]; Mauserstrasse 3, 70469  
Stuttgart (DE).

(72) Inventors; and

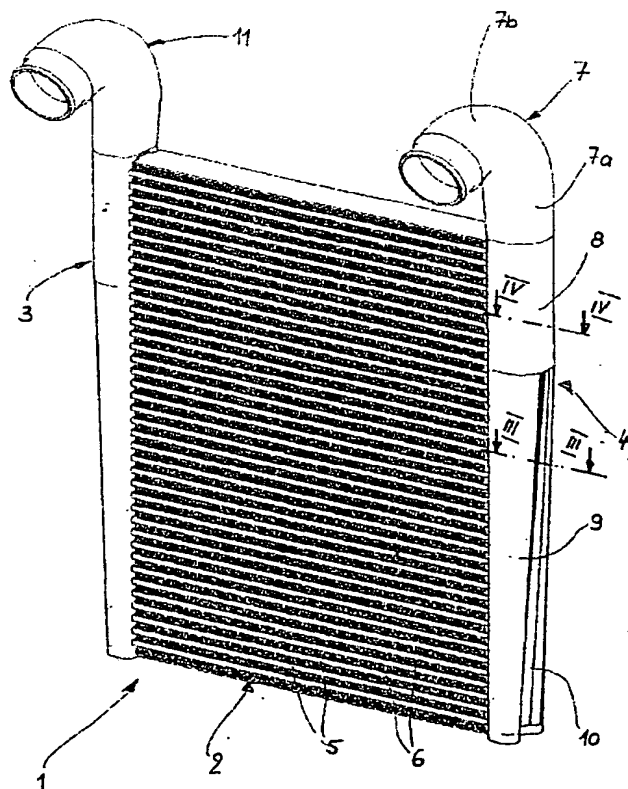
(75) Inventors/Applicants (US only): AUGENSTEIN,  
Claus [DE/DE]; Uhlandstrasse 24, 70839 Gerlingen  
(DE). EMRICH, Karsten [DE/DE]; Gutenbergstrasse  
97, 70197 Stuttgart (DE). ENGELHARDT, Martin  
[DE/DE]; Christofstrasse 11, 71696 Möglingen (DE).  
FÖRSTER, Klaus [DE/DE]; Wiener Strasse 300,  
70469 Stuttgart (DE). GHIANI, France [IT/DE];  
Freiberger Strasse 60, 74321 Bietigheim-Bissingen  
(DE). HENDRIX, Daniel [DE/DE]; Remstalstrasse 31,  
70374 Stuttgart (DE). HOROHO, Scott [US/US];  
3448 Toomer Kiln Circle, Mount Pleasant, SC 29466  
(US). KULL, Reinhard [DE/DE]; Stauffenbergstrasse  
16, 71642 Ludwigsburg (DE). SCHAIRER, Andre  
[DE/DE]; Sonnenbergstrasse 54, 70184 Stuttgart (DE).  
WEILER, Bernd [DE/DE]; Lortzingstrasse 47, 73660

[continued on next page]

As printed

(54) Title: CHARGE-AIR COOLER FOR MOTOR VEHICLES

(54) Bezeichnung: LADELUFTKÜHLER FÜR KRAFTFAHRZEUGE



(57) Abstract: The invention relates to a heat exchanger for motor vehicles, especially for utility vehicles. Said heat exchanger comprises a heat exchanger unit (2), constituted of tubes (5) having tube ends and ribs (6) disposed between said tubes (5), and collecting tanks (3, 4), disposed on both ends and produced by internal high pressure forming for introducing and discharging a medium. Said collecting tanks (3, 4) comprise bottoms with openings for receiving the tube ends, covers and inlet and outlet tubes (7, 11).

(57) Zusammenfassung: Die Erfindung betrifft einen Wärmeübertrager für Kraftfahrzeuge, insbesondere für Nutzfahrzeuge mit einem aus Rohrenden aufweisenden Rohren (5) und zwischen den Rohren (5) angeordneten Rippen (6) bestehenden Wärmeübertragerblock (2) und beiderseits angeordneten, durch Innen-Hochdruck-Umformung hergestellten Sammelkästen (3, 4) zur Ein- und Ausleitung eines Mediums, wobei die Sammelkästen (3, 4) Böden mit Öffnungen zur Aufnahme der Rohrenden, Deckel sowie Ein- und Auslassstutzen (7, 11) aufweisen.

WO 2005/031239 A1

BEST AVAILABLE COPY

Urbach (DE). **WEISE, Stefan** [DE/DE]; Kyffhäuser  
Strasse 50, 70469 Stuttgart (DE).

UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ,  
MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY,  
CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU,  
MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF,  
BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE,  
SN, TD, TG).

**(74) Joint Representative: BEHR GMBH & CO. KG;**  
Intellectual Property, G-IP, Mauserstrasse 3, 70469  
Stuttgart (DE).

**(81) Designated states** (*unless otherwise indicated, for every  
kind of national protection available*): AE, AG, AL,  
AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA,  
CH, CN, CO, CR, CU, CZ, DK, DM, DZ, EC, EE, EG,  
ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS,  
JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV,  
MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO,  
NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG,  
SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US,  
UZ, VC, VN, YU, ZA, ZM, ZW.

**(84) Designated states** (*unless otherwise indicated, for every  
kind of regional protection available*): ARIPO patent  
(BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ,

**Declaration under Rule 4.17:**

– of inventorship (Rule 4.17(iv)) for the following  
designation US

**Published:**

– with International Search Report.  
– before the expiration of the time limit for amending the  
claims and to be republished in the event of receipt of  
amendments

*For an explanation of the two-letter codes and the other  
abbreviations, reference is made to the explanations ("Guidance  
Notes on Codes and Abbreviations") at the beginning of each  
regular edition of the PCT Gazette.*